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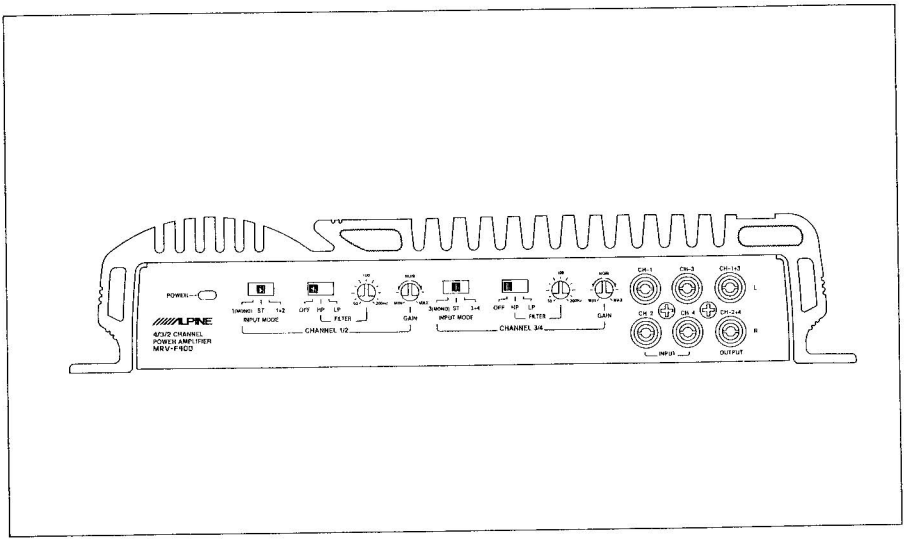
MANUAL DEL PROPIETARIO/BRUKSANVISNING

MRV-F400

4/3/2 Channel Power Amplifier



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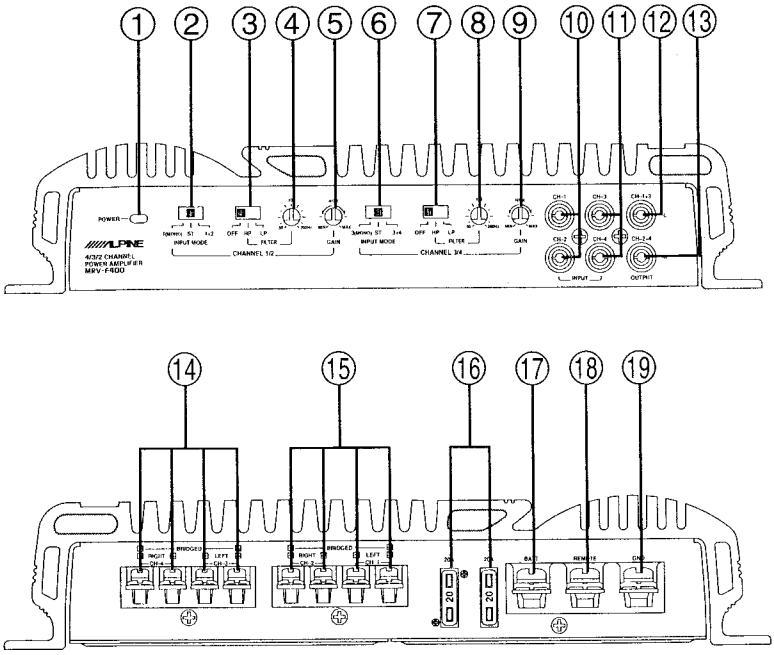
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LEFT
RIGHT
REMOTE
GND

Fig. 1/Abb. 1

INSTALLATION/EINBAU/INSTALLATION/INSTALLAZIONE/ INSTALACION/INSTALLATION

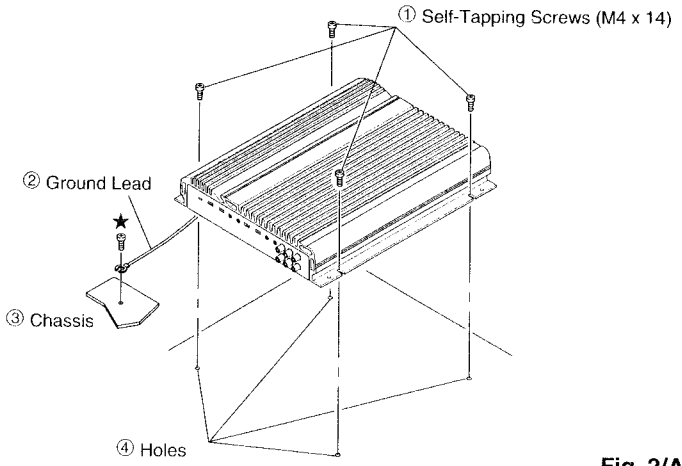


Fig. 2/Abb. 2

CONNECTIONS/ANSCHLÜSSE/CONNEXIONS/COLLEGAMENTI/ CONEXIONES/ANSLUTNINGAR

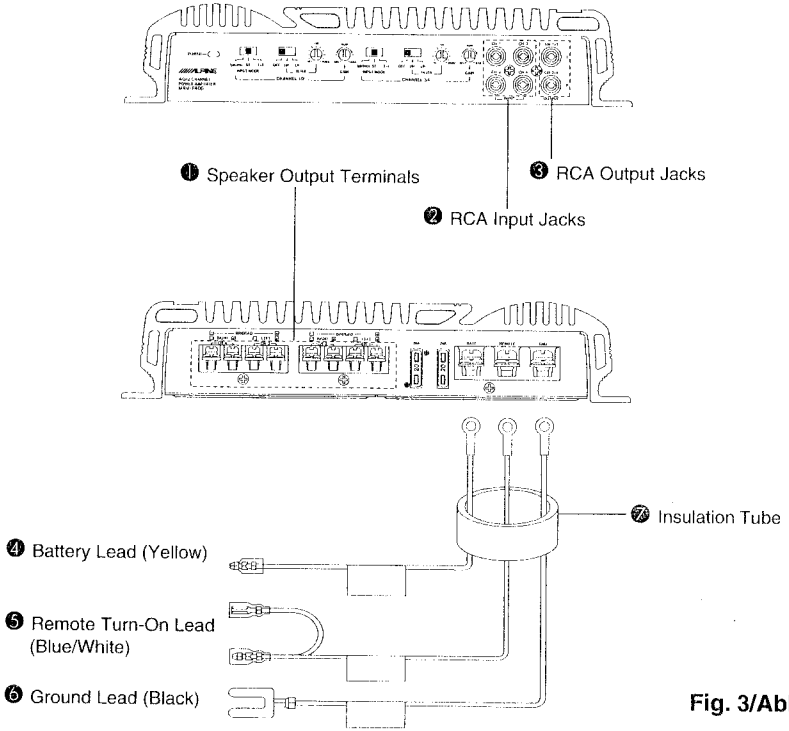
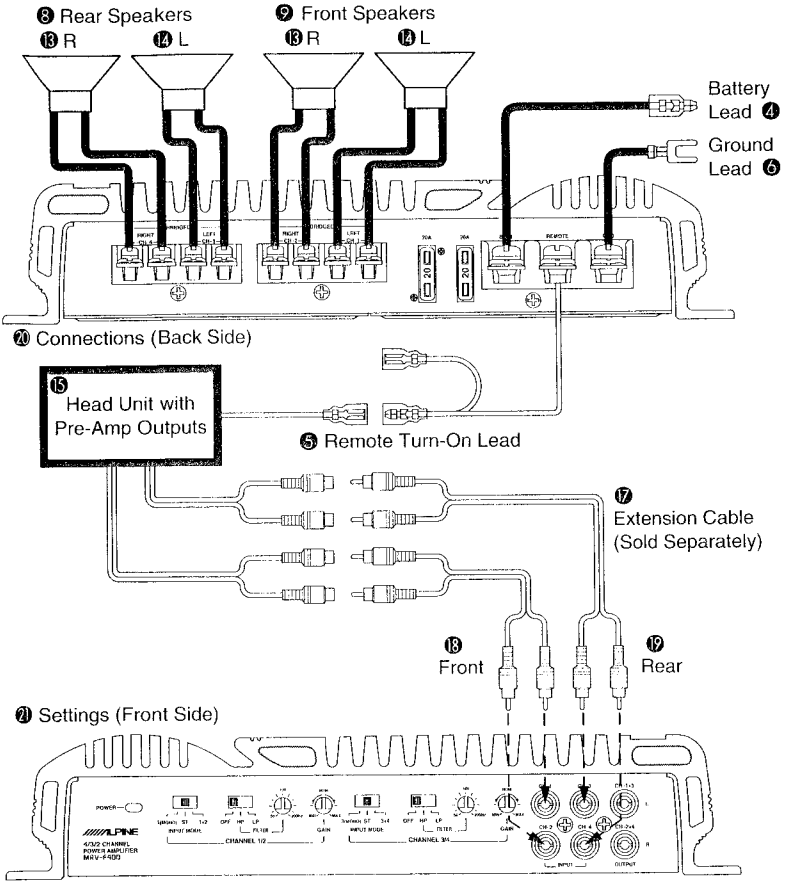

❶ Speaker Output Terminals
❸ RCA Output Jacks
❷ RCA Input Jacks
❼❽ Insulation Tube
❹ Battery Lead (Yellow)
❺ Remote Turn-On Lead (Blue/White)
❻ Ground Lead (Black)

Fig. 3/Abb. 3

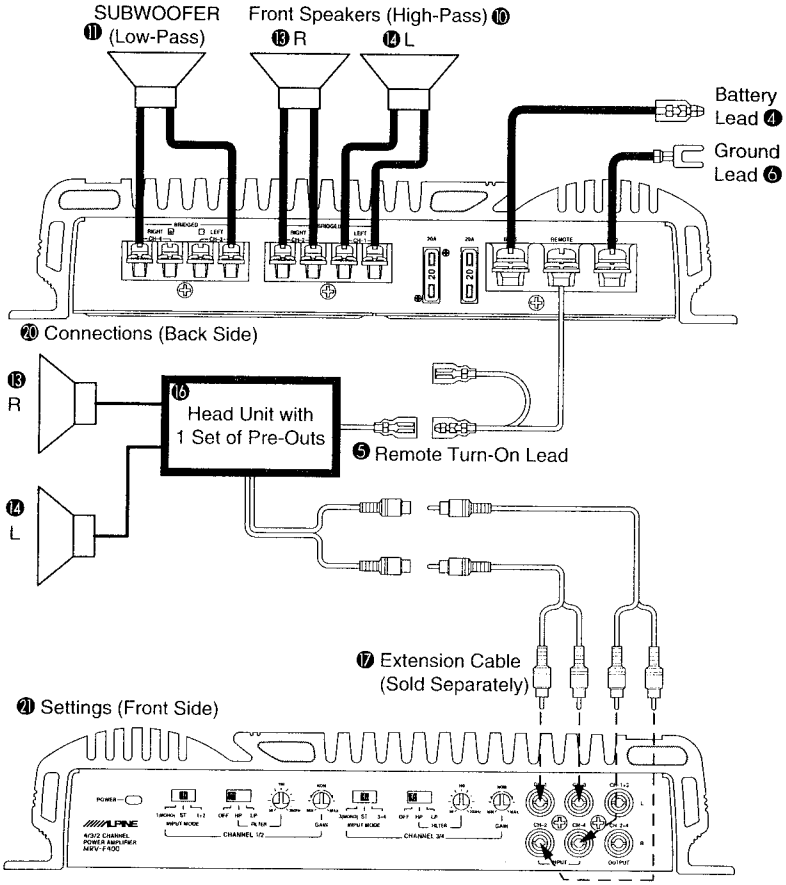
4-Channel System/4-Kanal-System/Système à 4 canaux/Sistema a 4 canali/ Sistema de 4 canales/4-kanalssystem



	㉒ INPUT MODE SELECTOR SWITCH	㉓ CROSSOVER MODE SELECTOR SWITCH
CH 1/2	1 (MONO) ST 1 + 2 INPUT MODE	OFF HP LP FILTER
CH 3/4	3 (MONO) ST 3 + 4 INPUT MODE	OFF HP LP FILTER

Fig. 4/Abb. 4

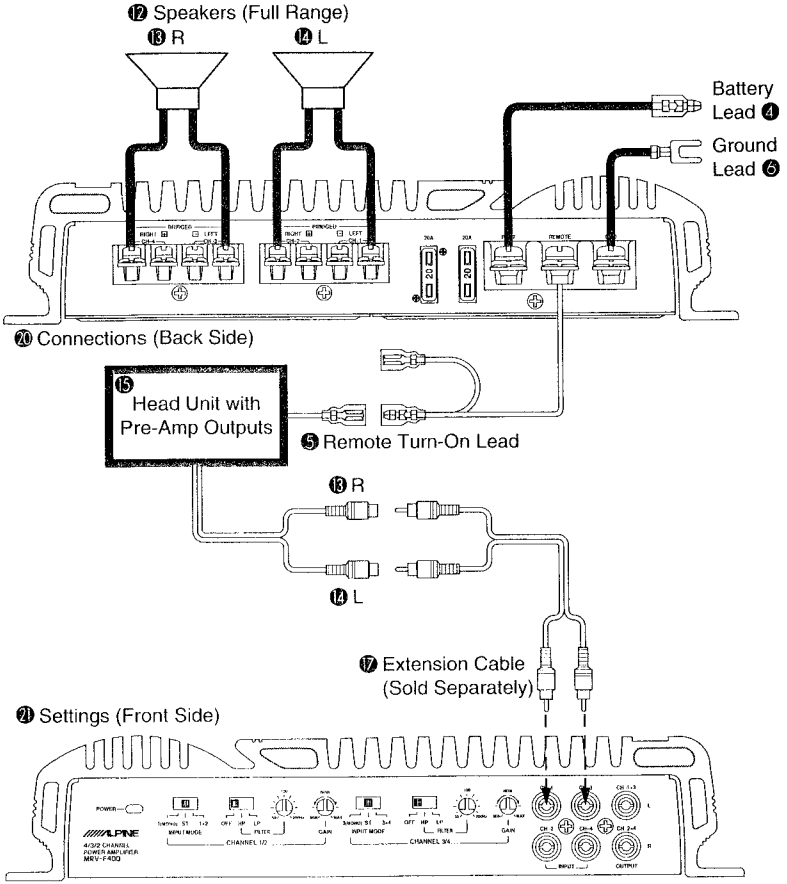
3-Channel System/3-Kanal-System/Système à 3 canaux/Sistema a 3 canali/ Sistema de 3 canales/3-kanalssystem



	㉒ INPUT MODE SELECTOR SWITCH	㉓ CROSSOVER MODE SELECTOR SWITCH
CH 1/2	1 (MONO) ST 1 + 2 INPUT MODE	OFF HP LP FILTER
CH 3/4	3 (MONO) ST 3 + 4 INPUT MODE	OFF HP LP FILTER

Fig. 5/Abb. 5

2-Channel System (Full Range)/2-Kanal-System (gesamtes Frequenzband)/ Système à 2 canaux (Large Bande)/Sistema a 2 canali (Gamma piena)/Sistema de 2 canales (Gama completa)/2-kanalssystem (bredband)



	㉒ INPUT MODE SELECTOR SWITCH	㉓ CROSSOVER MODE SELECTOR SWITCH
CH 1/2	1 (MONO) ST 1 + 2 INPUT MODE	OFF HP LP FILTER
CH 3/4	3 (MONO) ST 3 + 4 INPUT MODE	OFF HP LP FILTER

Fig. 6/Abb. 6

INTRODUCTION

At Alpine, Sonic Excellence is a goal we consider most important. Your purchase of this component has told us you feel the same. We take great pride in the long tradition of excellence in sound quality and reliability that the Alpine name represents. Now as a part of that tradition, we welcome you to the growing number of discerning audiophiles who own Alpine products.

This manual has been prepared to help you maximize your enjoyment of the outstanding performance & features of your new Alpine MRV-F400 4/3/2 Channel Power Amplifier.

This power amplifier incorporates many advanced technical & performance features. To realize the exceptional performance for which this product is capable, it is necessary that all signal sources, speakers and interconnection devices are of the highest sonic quality.

We recommend Alpine Head-Units, Crossovers, Speaker Systems, High Quality Interconnection/Speaker Cables & Accessories wherever possible.

Due to the complexity of this product, we strongly recommend that the MRV-F400 be installed by your authorized Alpine dealer.

Please study this manual carefully and become acquainted with all the special features and capabilities of your new MRV-F400. Should you have any questions, please consult your authorized Alpine dealer.

FEATURES

- **POWER-ON INDICATOR**
  This indicator illuminates in green when the amplifier is on and operational.

- **BUILT-IN ADJUSTABLE CROSSOVER (50 – 200 Hz HP/LP)**
  A pair of built-in, switchable and independent adjustable crossover network at 50 – 200 Hz, 12 dB per octave, can be used to set up the amplifier for low-pass (subwoofer) or high-pass (tweeter/midrange satellite) applications. These networks can also be switched off to allow full-range signal amplification.

- **PULSE WIDTH MODULATED DC-to-DC POWER SUPPLY WITH POWER MOS FET**

- **NON-FADING PRE-AMP OUTPUTS FOR SUBWOOFER SYSTEM**

- **FULLY DISCRETE PRE-AMP STAGE**

- **MULTI-MODE™ CAPABILITY**

- **DUO-ß FEEDBACK CIRCUITRY AND S.T.A.R. CIRCUITRY**
  Alpine's proprietary Duo-Beta is a technologically advanced form of feedback circuitry. Duo-Beta supplies low negative feedback throughout the audio frequency bandwidth and very high negative feedback at DC. This stabilizes the amplifier, removes DC offset, and offers excellent total harmonic distortion (T.H.D.) characteristics. It also provides low transient intermodulation distortion (T.I.M.), excellent slew rate, stability, and musicality.

- **NO CURRENT LIMITING**
  Absence of current limiters in the audio section ensures low T.I.M., excellent transient response, and superb sonic quality.

- **INPUT MODE SELECTOR (MONO/ST/L+R)**
  This switch allows the user to specify the input signal entering the amplifier.

- **INDEPENDENT, CONTINUOUSLY ADJUSTABLE GAIN CONTROLS FOR CH1/2 AND CH3/4**
  Allow different level settings for both pairs of channels.

- **GOLD-PLATED RCA INPUT/OUTPUT CONNECTORS**
  For the most accurate signal transmission and lowest possible loss. Gold-plated terminals are immune to signal deterioration caused by corrosion in the connectors that can develop over time.

- **GOLD-PLATED SCREW-DOWN POWER AND SPEAKER TERMINALS**
  For the high definition, minimum loss power transfer and oxidation resistance.

- **HIGH PERFORMANCE, LOW NOISE, AUDIOPHILE QUALITY ACTIVE AND PASSIVE COMPONENTS**
  For the best possible performance and consistency from unit to unit.

SWITCHES AND TERMINALS

Refer to Fig. 1 on page 3.

① **POWER-On Indicator**
② **INPUT MODE Selector Switch (Channels 1/2)**
③ **Crossover Mode Selector Switch (Channels 1/2)**
④ **Crossover Frequency Adjustment Knob (Channels 1/2)**
⑤ **Input GAIN Adjustment Control (Channels 1/2)**

⑥ **INPUT MODE Selector Switch (Channels 3/4)**
⑦ **Crossover Mode Selector Switch (Channels 3/4)**
⑧ **Crossover Frequency Adjustment Knob (Channels 3/4)**
⑨ **Input GAIN Adjustment Control (Channels 3/4)**
⑩ **RCA INPUT Jacks (Channels 1/2)**

⑪ **RCA INPUT Jacks (Channels 3/4)**
⑫ **RCA OUTPUT Jacks (Channels 1+3)**
⑬ **RCA OUTPUT Jacks (Channels 2+4)**
⑭ **Speaker Output Terminals (Channels 3/4)**
⑮ **Speaker Output Terminals (Channels 1/2)**

⑯ **Fuse Block**
⑰ **BATTery Lead Terminal**
⑱ **REMOTE Turn-On Lead Terminal**
⑲ **GrouND Lead Terminal**

PRECAUTIONS

- Improper wiring connections could cause damage to your vehicle's electrical system and/or the MRV-F400 amplifier. Carefully follow the wiring instructions in this manual.

- Attaching the battery lead to the positive (+) terminal of the battery should be the last connection after all other connections are made.

- Due to the high power output of the MRV-F400, it is important that all connections are clean and well secured, or damage could result.

- Be sure that the MRV-F400 is mounted in a way that will allow for free air circulation and heat dissipation.

- When changing fuses, be sure to replace the old fuse with one of the same amperage. Use of improper fuses can lead to serious damage to components.

● Installation Method for the Shielding of Car Noise

Introduction

Measures against car noise are very important for delivering the best performance from your audio system. In view of this, this product should be installed properly to suppress the effects of car noise.

Here we present a basic installation method for suppressing car noise.

Keeps the equipment away from the car harness. (Fig. A)

The car harness which is wired throughout the car might be exposed to the entrance of noise from the various electrical parts in the car.

A basic audio installation practice is to install the main component away from the car harness and wire it at that location.

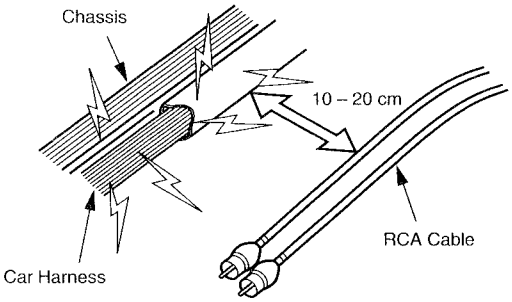


Fig. A

Do not have the power system and the signal system close together. (Fig. B)

When making a new audio wiring installation, ***a basic practice is to do the wiring as far away from the battery power cable as possible.***

If wired together, the noise will enter the RCA cable from the battery power supply.

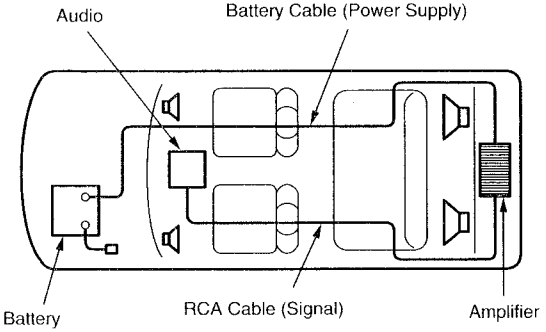


Fig. B

A power supply filter is the first step in noise prevention. (Fig. C)

Use of a power supply filter is the first step in preventing noise from entering the audio system from the power line that branches from the car harness. Note that when current flows through a power supply filter a magnetic field is produced and this can effect the audio as a noise. The installation location of the power supply filter is also an important factor.

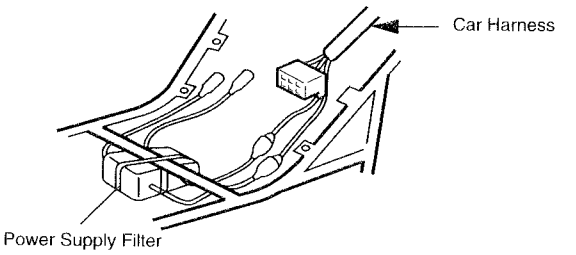


Fig. C

The amount of noise will vary depending on the quality of the ground. (Fig. D)

The current drawn by the audio equipment flows from the power line through the equipment and then back to the car body through the ground wire. When a stress is produced on this current, noise is introduced. Like the power line, the ground is an important factor. When fastening the ground wire by a screw, the essential point is to cleanly remove the coating from the car chassis to allow the current to flow easily.

* Alpine has a variety of power supply filters (surge suppressors) for noise prevention applications. For further details, contact your store of purchase.

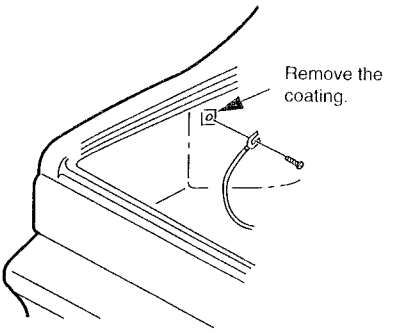


Fig. D

CONNECTIONS

Refer to Fig. 3 – 6 on pages 4 – 7.

Before making connections, be sure to turn the power off to all audio components. Insulation tubes for the speaker leads and the power supply leads are supplied with the MRV-F400, route the speaker leads and the power supply leads separately through these tubes.

❶ Speaker Output Terminals

The MRV-F400 has two sets of speaker outputs. Be sure to observe correct speaker output connections and phasing. In the stereo mode, connect the right speaker outputs to the right speaker and the left to left. Connect the positive output to the positive speaker terminal and the negative to negative.
In the bridged mode, connect the left positive to the positive terminal on the speaker and the right negative to the negative terminal of the speaker. Do not use the speaker (–) terminal commonly for the right and left speakers or connect it to the vehicle's chassis ground.

NOTE:

Do not connect speaker leads together or to chassis ground.

❷ RCA Input Jacks

Connect these jacks to the line out leads on your head unit using RCA extension cables (sold separately). Be sure to observe correct channel connections; Left to Left, Right to Right, Front to Front, and Rear to Rear.

❸ RCA Output Jacks

These provide a Front + Rear summed output (Non fading) for easier and more acoustically correct connection to subwoofer 2 midbass amplifier. This output (No crossover) is full range.

❹ Battery Lead (Yellow)

Connect this lead directly to the positive (+) terminal of the vehicle's battery. *Do not connect this lead to wiring in the vehicle's electrical system.* Be sure to add a 40 amp fuse (or two 20A fuses in parallel) as close as possible to the battery's positive (+) terminal. This fuse will protect your vehicle's electrical system in case of a short circuit. If you need to extend this lead, the wire gauge should be 8 AWG or larger.

❺ Remote Turn-On Lead (Blue/White)

Connect this lead to the remote turn-on or power antenna (positive trigger, (+) 12V only) lead of your head unit.

❻ **Ground Lead (Black)**
Connect this lead securely to a clean, bare metal spot on the vehicle's chassis. Verify this point to be a true ground by checking for continuity between that point and the negative (–) terminal of the vehicle's battery. Ground all your audio components to the same point on the chassis to prevent ground loops.

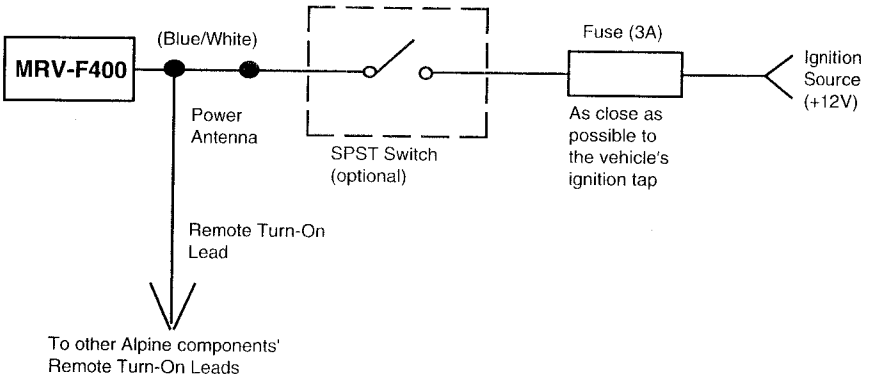
❼ **Insulation Tube**
❽ **Rear Speakers**
❾ **Front Speakers**
❿ **Front Speakers (High Pass)**
⓫ **Subwoofer (Low-Pass)**
⓬ **Speakers (Full Range)**
⓭ **Right**
⓮ **Left**
⓯ **Head Unit with Pre-Amp Outputs**
⓰ **Head Unit with 1 Set of Pre-Outs**
⓱ **Extension Cable (Sold Separately)**
⓲ **Front**
⓳ **Rear**
⓴ **Connections (Back Side)**
㉑ **Settings (Front Side)**
㉒ **INPUT MODE SELECTOR SWITCH**
㉓ **CROSSOVER MODE SELECTOR SWITCH**

CONNECTIONS

Please check your head unit for the conditions listed below:

a. The head unit does not have a remote turn-on or power antenna lead.
b. The head unit's power antenna lead is activated only when the radio is on (turns off in the tape or CD Mode).
c. The head unit's power antenna lead is logic level output (+) 5V, negative trigger (grounding type), or cannot sustain (+) 12V when connected to other equipment in addition to the vehicle's power antenna. If any of the above conditions exist, the remote turn-on lead of your MRV-F400 must be connected to a switched power source (ignition) in the vehicle. Be sure to use a 3A fuse as close as possible to this ignition tap. Using this connection method, the MRV-F400 will turn on and stay on as long as the ignition switch is on.

If this is objectionable, a SPST (Single Pole, Single Throw) switch, in addition to the 3A fuse mentioned above, may be installed in-line on the MRV-F400 turn-on lead. This switch will then be used to turn on (and off) the MRV-F400. Therefore, the switch should be mounted so that is accessible by the driver. Make sure the switch is turned off when the vehicle is not running. Otherwise, the amplifier will remain on and drain the battery.



INSTALLATION

Refer to Fig. 2 on page 4.

Due to the high power output of the MRV-F400, considerable heat is produced when the amplifier is in operation. For this reason, the amplifier should be mounted in a location which will allow for free circulation of air, such as inside the trunk. For alternate installation locations, please contact your authorized Alpine dealer.

1. Using the amplifier as a template, mark the four screw locations.
2. Make sure there are no objects behind the surface that may become damaged during drilling.
3. Drill the screw holes.
4. Position the MRV-F400 over the screw holes, and secure with four self-tapping screws.

NOTE:

To securely connect the ground lead, use an already installed screw on the metal part of the vehicle (marked (★)). Be sure this is a good ground by checking continuity to the battery (–) terminal. As much as possible connect all equipment to the same ground point. These procedures will help eliminate noise.

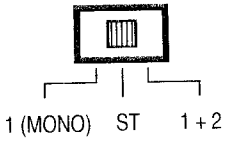
① Self-Tapping Screws (M4 x 14)
② Ground Lead
③ Chassis
④ Holes

SWITCH SETTINGS

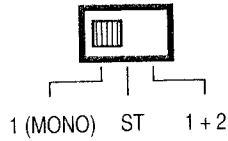
Input Mode Selector Switches ② and ⑥

The switch modes shown are for CH 1/2. Same explanations apply to mode selection for CH 3/4.

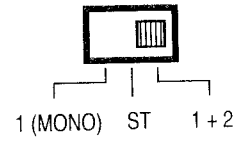
a) Set to the "ST" position (center) when the two channels are used in stereo.



b) Set to the "1 (MONO)" position when the two channels are used for one channel of a stereo or bridged system.

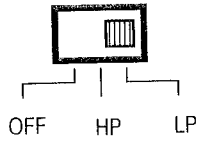


c) Set to the "1 + 2" position when the two channels are used for a subwoofer system which uses the right channel and left channel signals summed.

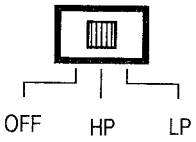


Crossover Mode Selector Switches ③ and ⑦

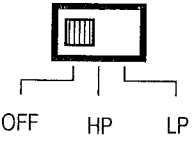
a) Set to the "LP" position when the amplifier is used for the low-pass (subwoofer) system. The frequencies higher than 50 – 200 Hz will be cut (at a rate of 12 dB per octave).



b) Set to the "HP" position when the MRV-F400 is used for the high-pass (tweeter/ midrange) system. The frequencies lower than 50 – 200 Hz will be cut (at a rate of 12 dB per octave).



c) Set to the "OFF" position when the MRV-F400 is used for the regular stereo system with full-range speakers. The full bandwidth will be output without cutting the high or low frequencies.



Input Gain Adjustment Controls ⑤ and ⑨

Set the MRV-F400 input gain knobs to the minimum (4V) position. Using a loud cassette or preferably a CD as a source, turn up the head unit volume until it distorts. Then, reduce the volume 1 step. You can then increase amplifier gain until the sound from the speakers becomes distorted.

Crossover Frequency Adjustment Knob ④ and ⑧

Permits adjustment of the crossover frequency, by rotating the knob to select any frequency between 50 to 200 Hz as the crossover point.

SPECIFICATIONS

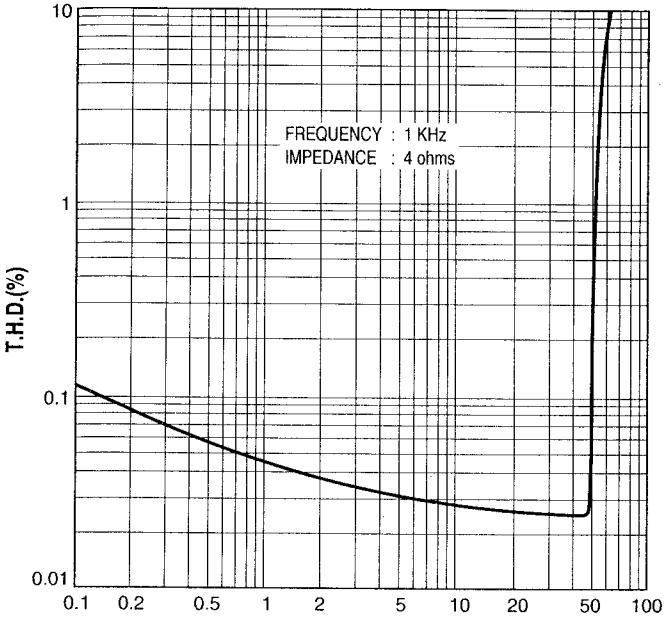
Power Output: RMS Continuous Power (at 12.0V, 20 Hz to 20 kHz)
Per channel into 4 ohms 40W (0.04% THD)
Per channel into 2 ohms 50W (0.3% THD)
Bridged into 4 ohms 100W (0.3% THD)
Dynamic Power (at 14.4V, 20 Hz to 20 kHz)
Per channel into 4 ohms 60W (0.04% THD)
Per channel into 2 ohms 80W (0.3% THD)
Bridged into 4 ohms 160W (0.3% THD)

Frequency Response ..... 10 Hz to 50 kHz (+0, –1 dB)
Signal-to-Noise Ratio ..... 100 dBA (referenced to rated power)
Slew Factor ..... Greater than 5
Input Sensitivity (for rated power output) ..... 200 mV to 4.0V (1.0 V at center detent)
Input Impedance ..... 10k ohms
Speaker Impedance ..... 4 or 2 ohms (stereo), 4 ohms (bridged)
Crossover Frequency and Slope ..... 50 to 200 Hz, 12 dB per octave
Power Requirement ..... 11 – 16V DC Negative Ground
Dimensions (W x H x D) ..... 240mm x 53mm x 330mm (9-7/16" x 2-1/16" x 13")
Weight ..... 4.0 kg (8 lbs. 13 oz)

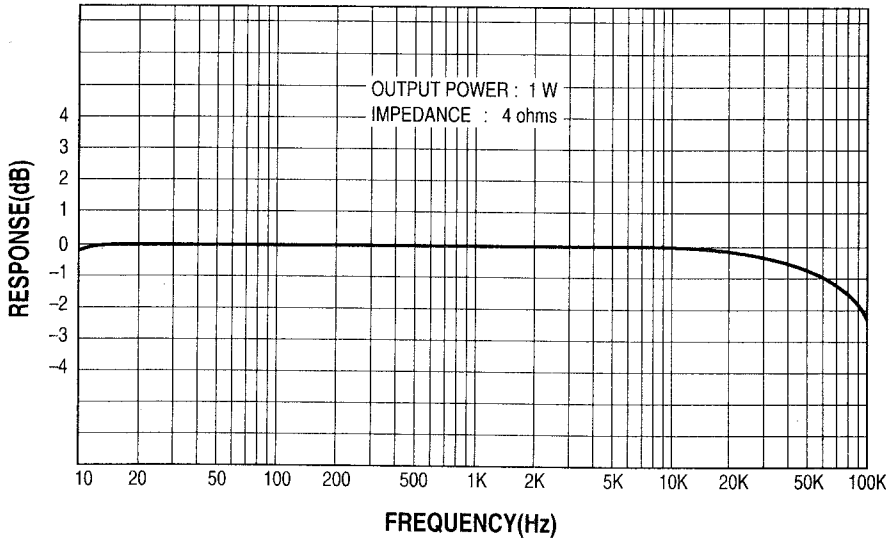
NOTE:

For product improvement, specifications and design are subject to change without notice.

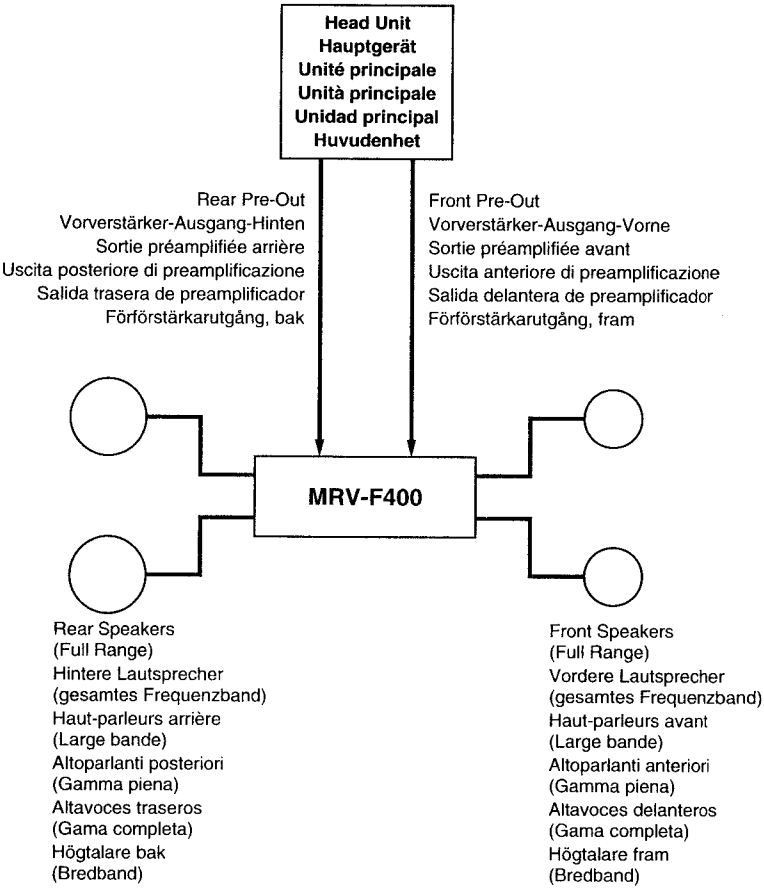
POWER V.S. DISTORTION CURVE



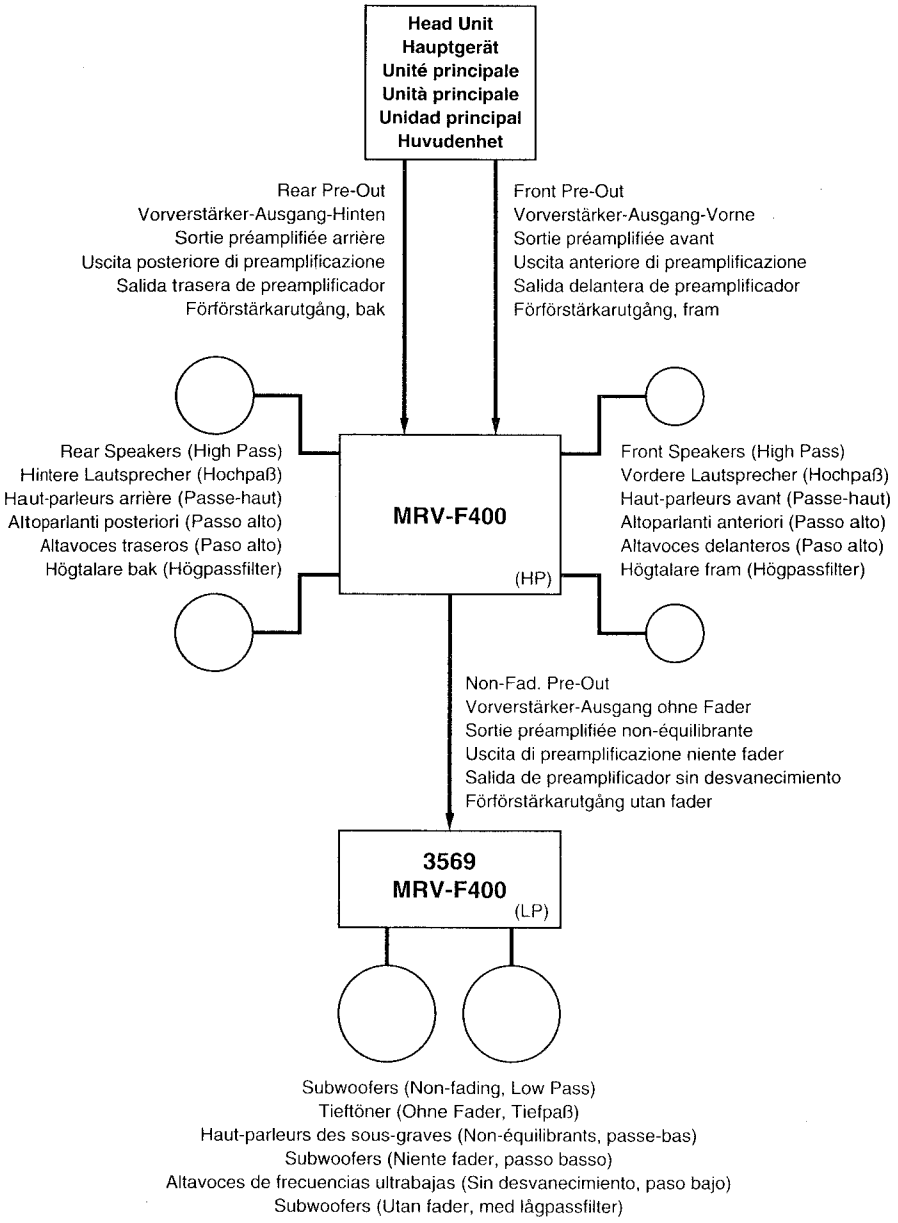
FREQUENCY RESPONSE CURVE



SYSTEM A/SYSTEME A/SISTEMA A:



SYSTEM B/SYSTEME B/SISTEMA B:



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